

Computer Information Systems

DIVISION OF ACCOUNTING,
BUSINESS, COMPUTER
INFORMATION SYSTEMS
& ECONOMICS

In addition to the courses below, students in the Computer Information Systems major are also required to take the following General Education courses (see pages 54-58).

- ENG 106 Argumentative Writing
 ENG 107 Academic Writing
 ENG 208 Sophomore Core –
 Social Responsibility
 MTH 114 Precalculus
 AAC course Arts as Catalyst (1 c.u.)
 HUM GELS Humanities GELS (2 c.u.s)
 CAT/HUM GELS (1 c.u.)
 Creative Arts & Technology
 GELS
 or
 Humanities GELS
 SOC SCI GELS Social Science GELS (2 c.u.s)
 General Education Electives (2 c.u.s)

Many courses have prerequisites which are listed in the course description. Please be sure that necessary prerequisites have been taken before enrolling in any course.

A student in the Computer Information Systems major must choose a field of concentration from the three fields offered:

- Database
- Network/Security
- Programming

The following core of common courses is required of all Computer Information Systems majors:

GENERAL BUSINESS, MATHEMATICS & SCIENCE CORE COURSES

- ACC 201 Principles of Accounting I
 BUS 200 Introduction to Management
 ECN 210 Principles of Economics I:
 Microeconomics
 MTH 221 Calculus & Analytic
 Geometry I
 SCI 101 Applied Science I
 SCI 102 Applied Science II

CIS CORE COURSES

- CMP 100 Computer Literacy*
 CMP 110 Introduction to Visual
 Basic.NET
 CMP 126 Programming I
 CMP 226 Programming II
 CMP 300 System Analysis & Design
 CMP 322 Introduction to
 Operating Systems
 CMP 330 Database Management
 CMP 334 Internet & Web Publishing:
 Theory & Applications
 CMP 460 Applied Systems Development
 Project

* This course may be substituted by a combination of

- CMP 102 Fundamental Computer
 Literacy I (0.5 c.u.)
 and
 CMP 104 Fundamental Computer
 Literacy II (0.5 c.u.)

COMPUTER INFORMATION SYSTEMS DATABASE CONCENTRATION

The courses required for the Database concentration in addition to the core courses are:

- CMP 324 Multimedia Programming
- CMP 336 Database Implementation
- CMP 430 Management Information Systems
- CMP 431 Data Communications & Networks

And one course selected from the following:

- CMP 225 C++ Programming
- CMP 228 Data Structures
- CMP 328 Programming III
- CAT 328 Artificial Intelligence for Games
- CMP 333 Special Topics in Computer Information Systems
- CMP 433 Advanced Special Topics in Computer Information Systems
- CMP 490 Internship

COMPUTER INFORMATION SYSTEMS NETWORK/SECURITY CONCENTRATION

The courses required for the Network/Security concentration in addition to the core courses are:

- CMP 431 Data Communications & Networks
- CMP 428 Information & Network Security
- NTW 125 Managing Internet Devices

And one course selected from the following:

- CMP 225 C++ Programming
- CMP 228 Data Structures
- CMP 324 Multimedia Programming
- CMP 328 Programming III
- CMP 336 Database Implementation
- CAT 328 Artificial Intelligence for Games
- CMP 333 Special Topics in Computer Information Systems
- CMP 433 Advanced Special Topics in Computer Information Systems
- CMP 490 Internship
- NTW 220 Routing I

COMPUTER INFORMATION SYSTEMS PROGRAMMING CONCENTRATION

The courses required for the Programming concentration in addition to the core courses are:

- CMP 328 Programming III
- CMP 336 Database Implementation
- CMP 324 Multimedia Programming
or
- CMP 428 Information & Network
Security

And one course selected from the following:

- CMP 225 C++ Programming
- CMP 228 Data Structures
- CAT 328 Artificial Intelligence for
Games
- CMP 333 Special Topics in Computer
Information Systems
- CMP 430 Management Information
Systems
- CMP 431 Data Communications &
Networks



B.S./M.S. COMPUTER INFORMATION SYSTEMS CONCENTRATION

In addition to the courses below, students in the B.S./M.S. Computer Information Systems major are also required to take the following General Education courses (see pages 54-58).

ENG 106 Argumentative Writing

ENG 107 Academic Writing

ENG 208 Sophomore Core –
Social Responsibility

MTH 114 Precalculus

AAC course Arts as Catalyst (1 c.u.)

HUM GELS Humanities GELS (2 c.u.s)

CAT/HUM GELS (1 c.u.)

Creative Arts & Technology

GELS or

Humanities GELS

SOC SCI GELS Social Science GELS (2 c.u.s)

General Education Electives (2 c.u.s)

Many courses have prerequisites which are listed in the course description. Please be sure that necessary prerequisites have been taken before enrolling in any course.

In cooperation with the New Jersey Institute of Technology (N.J.I.T.), Bloomfield College students will have the opportunity to receive a B.S. in Computer Information Systems from Bloomfield College, and a M.S. in Information Systems (I.S.) from N.J.I.T.

C.I.S. majors at Bloomfield College who want to further their education by earning a Master's degree in the field will be given special acceptance into N.J.I.T.'s M.S. program. The student must have a minimum cumulative GPA of 3.0 of 12 course units in the major and a minimum cumulative GPA of 3.0 overall at the end of the junior year. A qualified and interested student should file an application with the CIS coordinator at Bloomfield College by the end of his/her junior year. Students meeting this requirement who want to enter the program will be guaranteed admittance by N.J.I.T. and bypass the typical application and GRE testing process.

Students in the program will complete 32 of their 34 required courses at Bloomfield College. The remaining two (2) courses will be completed in their Bloomfield College senior year at N.J.I.T.



Students who wish to complete the B.S./M.S. program must complete the following:

GENERAL BUSINESS COURSES

- ACC 201 Principles of Accounting I
 BUS 200 Introduction to Management
 BUS 314 Principles of Marketing
 ECN 210 Principles of Economics I:
 Microeconomics
 MTH 221 Calculus & Analytic Geometry I

COMPUTER COURSES

- CMP 100 Computer Literacy*
 CMP 110 Introduction to Visual Basic.NET
 CMP 126 Programming I
 CMP 226 Programming II
 CMP 228 Data Structures
 CMP 300 Systems Analysis & Design
 CMP 322 Introduction to
 Operating Systems
 CMP 328 Programming III
 CMP 330 Database Management
 CMP 334 Internet & WEB Publishing:
 Theory & Applications
 CMP 430 Management Information
 Systems
 CMP 431 Data Communications &
 Networks (formerly CMP 331)
 CMP 460 Applied Systems Development
 Project

MINOR IN COMPUTER INFORMATION SYSTEMS

The Computer Information Systems Minor consists of six required courses and two electives. The six required courses are:

- BUS 200 Introduction to Management
 CMP 110 Introduction to Visual Basic.NET
 CMP 126 Programming I
 CMP 300 Systems Analysis & Design
 or
 CAT 108 Introduction to Game Design
 and
 CAT 209 Creating Your Game Design
 Document
 CMP 324 Multimedia Programming
 CMP 330 Database Management

SCIENCE COURSES

- SCI 101 Applied Science I
 SCI 102 Applied Science II

And two courses taken at N.J.I.T.:

- CIS 251 Computer Organization
 CIS 333 Introduction to UNIX Operating
 Systems
 or
 CIS 456 Open Systems Networking

In addition to the courses listed above students must take the following courses before beginning the Masters' degree courses at N.J.I.T.:

- MTH 200 Applied Statistics I
 MTH 222 Calculus & Analytic Geometry II
 ACT 515 Accounting for Managerial
 Control (at N.J.I.T.)

Masters' degree courses are to be taken at N.J.I.T.

* This course may be substituted by a combination of

- CMP 102 Fundamental Computer
 Literacy I (0.5 c.u.)
 and
 CMP 104 Fundamental Computer
 Literacy II (0.5 c.u.)

Two additional elective courses selected from the following:

- CAT 320 Multimedia II: Interactive
 Design & Programming
 CMP 225 C++ Programming
 CMP 226 Programming II
 CMP 334 Internet & Web Publishing:
 Theory & Applications
 CMP 430 Management Information
 Systems
 CMP 431 Data Communications
 & Networks
 NTW 125 Managing Internet Devices

Computer Information Systems Courses

NOTE: Courses marked with an asterisk (*) require special fees. See page 14.

■ **General Education Course**
(Primary Competency Addressed)

CMP 100 COMPUTER LITERACY* (For Business Majors)

■ (Scientific and Technological Skills)

This course introduces an overview of computing and a "hands-on" introduction to the applications of microcomputers. Students will obtain experience in the most important categories of application packages: Windows, Internet, word processing and spreadsheet software along with various technologies. Students cannot get credit for this course and CMP 102 and CMP 104. 1 c.u.

CMP 101 MIS FOR SUPPLY CHAIN MANAGEMENT

Capabilities and limitations of computer-based information systems applied to supply chain management. Hardware and software. Emphasis on current, top-down development methodologies of phased systems development, MIS project management, structured analysis and design. Communication with systems developers through Pseudo-Code and Structured English will also be stressed. 1 c.u.
Prerequisite: Any two courses in Supply Chain Management, or consent of the Supply Chain Management academic coordinator.

CMP 102 FUNDAMENTAL COMPUTER LITERACY I*

(For Non-Business Majors)

■ (Scientific and Technological Skills)

A "hands-on" introduction to the applications of microcomputers. Students will obtain experience in Windows, word processing, presenting construction, and web site construction, as well as a brief introduction to spreadsheet use. This course and CMP 104 together are equivalent to CMP 100. 0.5 c.u.
Students cannot get credit for this course and CMP 100.

CMP 104 FUNDAMENTAL COMPUTER LITERACY II*

(For Non-Business Majors)

■ (Scientific and Technological Skills)

A "hands-on" introduction to the applications of microcomputers. Students will be presented an overview to computing, networks, and the Internet and obtain experience in desktop publishing, database management and spreadsheet software. This course and CMP 102 together are equivalent to CMP 100. Students cannot get credit for this course and CMP 100. 0.5 c.u.
Prerequisite: CMP 102.

CMP 106 E-COMMERCE TECHNOLOGY*

E-Commerce Technology is an essential course for anyone looking to take the next steps in launching a successful online business technological implementation. This is a hands-on, survey and introductory course to bridge students into the different fields in the E-Commerce program. The topics include web site design tools and models, networking and security, and implementation and development tools. 1 c.u.

Prerequisite: CMP 100.

CMP 110 INTRODUCTION TO VISUAL BASIC.NET*

An introduction to application development using a graphical user interface. The course emphasizes the concepts and techniques for developing programs exploiting the Windows environment. Tutorial sessions illustrate the use of forms, variables, properties, selection and repetition controls, functions, arrays, databases, classes and objects. 1 c.u.

Prerequisites: CMP 100 or both CMP 102 and CMP 104.

CMP 126 PROGRAMMING I*

An introduction to the problem solving process, numerical methods, algorithms and algorithm design. Basic principles of software engineering, program design, coding, debugging, and documentation are introduced. Structured and object-oriented programming is taught using the Java platform. 1 c.u.

Prerequisites: CMP 100 or both CMP 102 and CMP 104; MTH 105.

CMP 225 C++ PROGRAMMING*

This course will cover basic programming concepts, such as file input/output, memory capacity and internal data storage, and object-oriented programming concepts, data structures, classes, objects and information hiding. Assigned projects reinforce knowledge of entry-level concepts, as well as advanced concepts in C++ programming. 1 c.u.

Prerequisites: CMP 100, CMP 126.

CMP 226 PROGRAMMING II*

A continuation of CMP 126. Continued development of design, coding, debugging, and documentation. Topics covered include Servlet, Java Server Pages, Web Application, polymorphism, overloading along with the most common aspects of Java. 1 c.u.

Prerequisite: CMP 126.

CMP 228 DATA STRUCTURES*

Emphasis is placed on the importance of efficient data structures and algorithms in design and implementation. The classic data structures include arrays, strings, list, linked lists, stacks, queues, trees, and graphs and iterative and recursive programming techniques. Algorithms include sorting and searching with emphasis on complexity and efficiency. 1 c.u.

Prerequisite: CMP 226 or consent of the Instructor.

CMP 248 INTRODUCTION TO MICROPROCESSORS*

An introduction to microprocessors. This course will study the basic theory and operation of microprocessors with their logical and programming characteristics. It will introduce a study of architecture, instruction sets, machine language programming, input/output, interrupts and interfacing techniques. 1 c.u.

Prerequisite: CMP 126.

CMP 300 SYSTEMS ANALYSIS AND DESIGN*

An introduction to the fundamental concepts of systems analysis and design. The role of the system analyst and the training skills required to function in this position are presented. Students will do application analysis, including modeling of processes and data and transformation of analysis results into a design for a specific computer environment. Design of programs, system testing, evaluation, conversion and documentation will also be discussed. The life cycle concept and its application to business systems are also discussed. 1 c.u.

Prerequisites: BUS 200; CMP 110, CMP 126.

CMP 322 INTRODUCTION TO OPERATING SYSTEMS*

Introduction to the organization, design and implementation of operating systems covering: basic concepts and considering examples of current systems, structure, process management, scheduling; interaction of concurrent processes; I/O; device handling; memory and virtual memory management, file management; communication, synchronization, processor allocation, and distributed file systems. 1 c.u.

Prerequisite: CMP 225 or CMP 226.

CMP 324 MULTIMEDIA PROGRAMMING*

A multimedia development environment and a scripting language valuable in combining text, sound, graphics, and animation into an interactive application are studied. Design concepts (user interface design and the integration of media), problem decomposition, and programming concepts (abstractions, control mechanisms, data structures), are discussed and utilized to produce a multimedia course project. 1 c.u.

Prerequisite: CMP 110.

CMP 328 PROGRAMMING III*

A continuation of CMP 226. Additional topics in the programming theory are discussed using object-oriented programming languages platform. Students develop business-related projects using standard objects ranging from low level data structures to high level graphical user interface objects. 1 c.u.

Prerequisite: CMP 226.

CMP 330 DATABASE MANAGEMENT*

An introduction to the concepts of database processing. An understanding of the physical and logical organization of data relationships such as trees, hierarchies, networks, and flat files are presented via data models. Methods to achieve these logical relationships such as linked lists, chains, pointers, and inverted files are evaluated. Operational requirements of data base management systems are discussed as are characteristics of hierarchical, network, and relational systems. 1 c.u.

Prerequisite: CMP 300.

CMP 333 SPECIAL TOPICS IN COMPUTER INFORMATION SYSTEMS*

Special topics of current interest in computer and information systems. Topics may include Expert Systems, Data mining, Computer graphics, Assembly language, etc. Content varies each offering. Course may be repeated for credit as topics change. 1 c.u.

Prerequisite: Consent of the Instructor.

CMP 334 INTERNET AND WEB PUBLISHING: THEORY AND APPLICATIONS*

An introduction of computer communication networks from the physical layer of data transmission to the highest levels of applications software is provided for junior students who have little or no background in internet working and web publishing. The topics include internet working and internet protocol, network applications, and web publishing programming languages, such as Java, HTML, etc. Students are expected to create a web site, which involves user-interfaces, simple graphics, animation and audio at the end of the course. 1 c.u.

Prerequisites: CMP 110, CMP 126.

CMP 336 DATABASE IMPLEMENTATION*

This course offers students an extensive introduction to data server technology. The class covers the concepts of both relational and object relational databases and the powerful SQL programming language. Students are taught to create and maintain database objects and to store, retrieve, and manipulate data. Students learn to retrieve data by using advanced techniques such as ROLLUP, CUBE, set operators, and hierarchical retrieval. They also learn to write SQL and SQL *Plus script files to generate report-like output. Demonstrations and hands-on practice reinforce the fundamental concepts. 1 c.u.

Prerequisite: CMP 330.

CMP 428 INFORMATION AND NETWORK SECURITY*

This course will cover main concepts of information and network security. Students will learn how to deal with security issues for the whole life cycle of a system. Students will also learn how to design and develop a security system, implement and maintain a system security. 1 c.u.

Prerequisite: CMP 431.

CMP 430 MANAGEMENT INFORMATION SYSTEMS*

Analysis of business information systems using the case study method. Information requirements, planning, design, implementation, facilities, equipment, replacement of equipment, and control. Analysis of cost/benefit relationships to the total management effort. 1 c.u.

Prerequisites: Junior standing; CMP 300.

CMP 431 DATA COMMUNICATIONS AND NETWORKS*

(Formerly CMP 331)

Introduces the basic concepts, principles, design procedures and applications of computer networks and data communication systems. This course also introduces students to other important issues in data communications including network security, network management, etc. 1 c.u.

Prerequisite: CMP 334.

CMP 433 ADVANCED SPECIAL TOPICS IN COMPUTER INFORMATION SYSTEMS*

Topics may include the continuation of CMP 333, Data Warehouse Implementation, etc. Content varies with each offering. The course may be repeated for credit as topics change.

Prerequisites: Junior standing and consent of the Instructor. 1 c.u.

CMP 460 APPLIED SYSTEMS DEVELOPMENT PROJECT*

Students function as teams of analysts and programmers to complete a comprehensive system development project(s). Teams analyze selected programs, design a system to solve the problem including project specifications, system flow-chart and time line for completion. Systems analysis and programming skills will be emphasized. Teams will make formal presentations of their results. 1 c.u.

Prerequisite: Consent of the Instructor and second semester Junior standing.

CMP 490 INTERNSHIP

A semester-long field experience affording practical application of computer systems. A minimum of 10 hours per week of field work. Attendance at weekly on-campus seminar required. Internships arranged by appropriate faculty or approved by the faculty if arranged by the student. Credit for this course may not be obtained through life/learning assessment. 1 c.u.

Prerequisite: Second semester Junior standing in the CIS major.